May 15.

Rev. H. C. McCook, D. D., Vice-President, in the chair.

Eighteen persons present.

The deaths were announced of Caleb Cope, a member, on the 12th, inst. and Dr. Gerhard Vom Rath, a correspondent, April 23.

A paper entitled "Notes on new species of Orb-weaving Spiders." By Rev. Henry C. McCook was presented for publication.

Notes on the Relations of Structure and Function to Color Changes in Spiders.—Rev. Dr. Henry C. McCook submitted the following remarks on color changes in spiders, which he wished to be understood as in part, at least, tentative. They were intended to evoke suggestions and helpful information from members of the Academy and others, rather than to present final conclusions on a most interesting subject.

I. On the Relation of Structure to Color he observed that:—

1 The color of young spiders is almost without exception light yellow, or green, whitish or livid, tints that blend very well with the prevailing greens of foliage, young twigs and the grays of bark of trees, of rocks and soil. This is due largely to the fact that the tissues are at that time translucent, allowing a free play of light through them. The effect is also, probably, caused by the absence of food in the alimentary tract and lack of distribution of nutriment throughout the system.

As young spiders advance in age the color deepens, which is caused no doubt by gradual hardening of the tissues, thus making them more opaque. Up to this period no food has been taken, hence the absence of food alone is not sufficient to account for the light colors of the first stages after exode. Yellows and browns in various tints occur at this period, and in some cases, not generally he believed, color patterns which are characteristic of the various species in adult life begin to appear with more or less distinctness, or at least suggestively. It is not until sedentary spiderlings have established themselves upon their own webs, and so to speak, have set up housekeeping for themselves, that the characteristic colors of the species begin to appear with any positive degree of distinctness.

2 As the spiders further advance in age and make their successive moults, various color changes may be noted. Immediately after moulting the color is always lighter, which is probably due to the fact that the harder skin, just cast off, prevented the passage of light through the tissues. The new skin is probably thinner, and more translucent. Dr. McCook believed that moulting produces changes in color patterns of a very decided kind, at least in certain species. Apparently some organic change occurs which is the cause of this phenomenon.